

290 9 44

FACTS AND REMARKS
RELATIVE TO THE
WITHAM and the WELLAND:
OR
A SERIES OF OBSERVATIONS
ON THEIR
PAST AND PRESENT STATE;
ON THE
Means of Improving
THE CHANNEL OF THE WITHAM,
AND THE
Port of Boston;
and on the
Impolicy of Changing the Course of the Welland:
WITH AN APPENDIX, CONTAINING
REMARKS ON THE
BRIDGE and GRAND SLUICE at BOSTON,
AND ON
WAINFLEET HAVEN.

By WILLIAM CHAPMAN.

BOSTON:
PRINTED BY J. HELLABY,
AND SOLD BY LACKINGTON, ALLEN AND CO. LONDON,
AND THE BOOKSELLERS IN LINCOLNSHIRE.

—•—•—•—
1800.

1/3 P 22 x

FACTS AND REMARKS

WITHIN THE

A SERIES OF

BY

PART

THE

THE

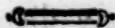
THE

THE

THE



PREFACE.



THAT there never was a moment more interesting to the fen-country than the present, and that there never existed a disposition so hearty and general to unite for promoting its improvement, are positions which, it is presumed, will not be questioned.

An experience of 30 years has removed, even from cottagers, the sturdy prejudices once maintained against the inclosure of the fens. Before Holland fen was inclosed, there were many industrious men, who could then scarcely support their families, but who now live in comfort on their own estates. Even those, whose sole dependence is labor, have been greatly benefitted : employment they have found more regular ; wages more certain. That a change so strikingly beneficial should create in others a desire for similar advantages is perfectly natural ; and hence, I infer, it is, that scarcely a hand is raised up against the drainage and inclosure of the remaining open commons. Hitherto, however, it has unfortunately happened that, in drainage, every step has been partial ; for, hitherto, locality has been the object.

BUT an opportunity now offers of uniting to accomplish, by one vast plan, works of immense magnitude and of incalculable utility.

OF the partiality and inefficacy of former works the face of the fen-country, in general, affords legible and abundant proofs; and whoever reads Dugdale's history of imbanking and draining, and Badeslade's history, as well as other publications which might be enumerated, will find a disgusting recital of party disputes, and of attempts to remedy one error by another.

EVEN of some works, which have been recently executed, I am sorry to state, that they afford but little evidence of skill, either in design or in execution. The Horncastle navigation is deficient in both. By pursuing an injudicious and ill-executed plan, this work has entirely failed. The locks have fallen down, and Subscribers' shares have sunk more than 95 *per cent*.

THE author is aware that to overturn adopted opinions is no easy task: and that the voice of professional men, whether Divines, Physicians, or Surveyors, generally assumes a tone of importance, which usually expects and sometimes commands the nod of approbation. It is, therefore, presumed, that the facts and remarks relating to the Welland will not produce universal conviction; but it is hoped, that, until the objections here stated have been clearly overturned, the most zealous supporter of the Welland-scheme will suffer himself to pause.

WITH respect to the future state of the fens, the present moment is critical. By injudicious works, the drainage may be injured, the commerce of Boston and Spalding may be impeded, and they may be shut out from the sea; but, on the other hand, the wealth of these towns, and of the surrounding country, may be increas-

ed, to an incalculable amount, if the parties interested can be induced to concur in unity of design for the improvement of the whole.

WHAT system it is, which would best suit the general interests of the country, is not, perhaps, at the present moment, easy to ascertain. When the subject has been more fully investigated, one plan, promising the greatest advantages, may be formed from a combination of different schemes. The levels of the fens, connected with the Witham and the Welland, have been taken, and doubtless with sufficient accuracy.

ON these levels, surveyors of eminence have founded plans for the improvement of the country; but, as every question has two sides, it was not to be expected, that the first opinions would pass unnoticed and uncontroverted. This, however, was, in a great degree, the case with respect to the plan proposed for changing the course of the Welland; but not so with the recent Report of Mr. Rennie on the means of draining the East, West, and Wildmore fens.*

DURING 7 years, the wisdom of the scheme for changing the course of the Welland has not, in a public way, been once disputed. Nor would it now have engaged my attention, had it not appeared more than probable, that the fens

* The expediency of this plan has been questioned by Mr. Pocklington of Sibsey, whose estimate of expence does not amount to one-half of that made by Mr Rennie.

Rennie, to drain the three fens by Maud Foster,	
about - - - - -	£.135,000.
Pocklington, ditto - - - - -	56,000.

bordering on the Welland, with the East, West, and Wildmore fens, would be inclosed, and that great works of drainage would of course be required. *

CONSIDERING it of high importance to the welfare of the country, that no step should be taken which may endanger the outfall, and render the channels to sea more difficult than they now are, and believing that such would be the effect of diverting the course of the Welland, I have ventured to arraign the wisdom of that plan.

WHILST writing on the subject of the outfall and the channels seaward, I feel myself on ground peculiarly my own.

IF I except the unpublished report, furnished by a Gentleman for the corporation of Boston, a report very erroneous, and founded on a few questions, made during a few hours' view of a part of the channels, no Surveyor, no Commissioner, no Reporter, no Engineer, has touched upon the subject.

ON a subject of such importance, as the changing of the course of the Welland, which must materially affect not only the outfall of that river, but also of the Witham, it seems extraordinary, that nothing has been laid before the public.

IF an insignificant alley, or a bye road, is proposed to be changed, the propriety of the measure is often a subject of

* To bring under cultivation such an extensive tract of land as these *three* fens contain, will be not only a local but a national benefit. They equal, as was lately estimated, about the one-thousandth part of the number of cultivated acres in England, and about one-twelfth of the number necessary to be brought into cultivation before we can raise our own supplies.

the strictest inquiry. But to a question, involving the interest of an extensive and valuable portion of the county of Lincoln, a question, touching the value of the whole fen-country, and its products, little attention seems to have been paid.

THE course of a common sewer, or a parish-drain will sometimes engage the attention of a hundred commissioners of Sewers, whilst few indeed, among the Thousands that are interested, come forward to examine or to question the wisdom of a plan, though, on the very face of it, it proposes to convert the bed of an ancient tide-river into a canal, to shut it up by a sluice, and to drain the country by a course more circuitous than the present.

BEFORE I proceed to examine this plan, and to state the evils which will probably follow the stopping up of the mouth of the Welland, I shall take a short historical view of this river, of Bicker haven, and the river Witham.

THE observations which I shall make on the Grand-Sluice might, perhaps with propriety, have been introduced into the chapter on the Improvement of the Witham; but as I do not *recommend* the pulling down of the sluice (though I am of opinion its *removal* would be an advantage), I think it best to insert them in the Appendix.

THE inferences which I draw may be erroneous; my reasoning may be defective; but what I state respecting the outfall, the course of the currents, the effect of the tides, and the nature of the channels, is founded on fact, and is the result of my repeated observations.

Boston, 10th June, 1800.

Contents.

	Page
<i>General and Introductory Remarks</i> - -	1
<i>On the River Welland, and Bicker Haven</i> -	8
<i>Historic Sketch of the Changes of the Witham</i>	17
<i>On the Improvement of the Witham, and the Port of Boston</i> - - - -	38
<i>On the Importance of the North Channel, or Boston Deep; and on the Project proposed for changing the course of the Welland</i> -	48

Appendix.

<i>The Depth of Water in various Parts of the Witham, at different Periods</i> - -	61
<i>On the proposed Bridge at Boston</i> - - -	64
<i>On the Grand Sluice at Boston</i> - - -	67
<i>On Wainfleet Haven, and the Inexpediency of attempting great Works there</i> - -	70



General and Introductory Remarks.



THAT the great bay, or *Metaris* * *aestuarium* of Ptolemy, between the coasts of Lincolnshire and Norfolk, is considerably less than in former times, appears evident from the slightest survey of its coasts. On every side are seen marshes of considerable extent, and particularly at the head of the bay, between the Welland and Nene, and between this and the Ouze, where, from the first imbankment by the Romans, to that made in consequence of an Act passed in 1792, many thousands of acres have been gained from the sea. †

THIS increase of surface is certainly, in a great degree, a consequence of local circumstances, and

* *Mentaris*,—as corrected by Mr. Baxter.

† Perhaps the surface of the bay may at present be estimated at not less than 300 square miles, over which the tides yet flow; and

not, as some have supposed, the result of a general law of nature. The sand brought in by the tides, and the soil carried down by the four considerable rivers of this bay, may account for the formation of the great sand-beds that almost fill it, and for the extensive marshes that are found along its shores.

THERE probably was a time, subsequent to the last great "wreck of matter," when this estuary was nearly free from sand-banks, and the vast accretions of soil, in and upon its margin, perhaps owe their origin, in no small degree, to the *alluvion* of a large tract of land, which the sea has carried away between Skegness and Saltfleet, * and also from the Norfolk coast.

It is the opinion of many, that, at some very remote period, the whole bay will become dry

the inclosed marshes at nearly 100 square miles. Upon this supposition the bay has, since its first imbankment, lost about one fourth of its original size.

* That "old Skegnesse was clean eaten up of the sea" is the statement of Leland.

I have also authority, though not printed authority, for stating, that, at Sutton, the sea has advanced more than 7 miles upon the shore, and that at Mablethorpe, the roots and trunks of many trees, and large stones, the supposed ruins of a church, are visible at low water, a mile from the shore.

land; a state to be desired on account of the acquisition of soil, but which would certainly be found incompatible with the drainage of the fens. It must indeed be allowed, that a tendency to this state has been powerfully promoted by many, if not most, of the works which have been carried on in the fens and marshes; but though the drainage, the cultivation, and the commerce of the country have been greatly injured by the injudicious imbankment of marshes; by the unnecessary building of sluices; and by the diversion of the streams of the Ouze, the Nene, and the Welland from their original channels; yet, to suppose, that the whole bay will, under the present settled course of Nature, ever become dry land, is to calculate upon the certainty of all future works being more absurd than the past.

BUT let it not be supposed, that objections are made to works of art in general. Though they have frequently proved ruinous, yet, by them, from a state of almost general inundation, a great part of the fens are once more become firm and certain land, into which state it is supposed by many they were at first brought by the exertions of the Romans, after the imbankment of the marshes by that people.

PRIOR, and subsequent, to that period, the waters flowed in their original channels: They were not diverted; but the Welland passed through Spalding, the Nene and Ouze through Wisbeach, and the Little Ouze by way of Lynn. That the outfall by Wisbeach was then much larger than that by Spalding, or Lynn, is certain, because the Ouze and Nene are more considerable rivers than the Welland, or the little Ouze, —and because the opening, seaward, was much wider, as by the Roman banks appears at this day. The Welland, however, occupied no inconsiderable space, as is evident from the Roman banks, which, almost as high as Spalding, are half a mile asunder.

AMONG the many reasons which have been assigned for the decay of the outfalls, it has been supposed, that, after the country was abandoned by the Romans, the banks and small drains were neglected during the tumultuary times which succeeded: that the land-floods, overflowing the level, stagnated or ran off in small streams, whereby the regular outfalls being deprived of a considerable portion of the freshes, the tides so far got the ascendancy as to lodge, at and near the mouths of these rivers, vast quantities of sand, which all the contrivances of subsequent ages

have not been able to remove. But by whatever cause or causes the outfalls have been injured, whether by neglect of necessary works, by inundations, by imbanking marshes, or otherways, it is certain, from the history of the various works which have been executed, that when the outfall by one of these rivers has been found bad, the plans that have been frequently adopted, were better calculated to increase, than to remove the evil. The state of the next outfall has been examined (and some one always being better than the other two), canals have been cut, and rivers and drains turned from their ancient course to that outfall which was deepest. By such means some temporary, and some permanent, advantages have been gained. Yet it may be questioned, whether (considering the subject extensively, and taking into the account the probable state of the country for ages yet to come), it would not have been better to have kept the waters to their ancient beds, to have imbanked the rivers, and conducted the stock and downfall waters to them, through well-scoured drains and proper sluices. In this case, it is not improbable, that the drainage of the country would have been, at least, as perfect as it now is; for every new diversion of the waters from one outfall to another served to accelerate the ruin of the abandoned channel, and when these

in a future age were again diverted, a like effect succeeded. Thus have the waters of the Ouze, the Nene, and the Welland at various times been played off, to the great prejudice, and nearly ruin, of their respective channels and outfalls.

For the country which is drained by the Witham, it is fortunate that no portion of its waters have been turned to other channels; for, had that been the case, it is probable the Witham would now have been no better than the Welland or the Nene, and the Port of Boston, like Spalding and Wisbeach, accessible to barges only. That the Witham, however, has not escaped improper treatment, will hereafter be seen.

BUT the grand error, the root of all subsequent ones, and of all the difficulties attending the drainage of the country, seems to have been in the beginning. The Romans imbanked the country too early. Had the tides and land-waters been suffered to spread themselves over the surface a few centuries longer, the lower parts of the then marshes would have been elevated by the continual subsidence of silt,—there would have been no fens,—and the drainage of the whole level would have been perfect and natural. To remedy this ill-timed work (the imbankment) millions have been, and must yet be, spent; and still it does

not appear probable that the most fenny parts can ever be made solid land, nor the fen-country in general be rendered secure against inundation, arising from heavy and continued rains, or the breaking up of great frosts. But it is not so much my design to investigate the errors of *former* times, or to point out the instances, where powerful individuals, pursuing private gain, have planned, and caused to be executed, measures destructive to extensive districts, as to draw the attention of Gentlemen to the *present* state of the Witham and the Welland, and their channels sea-ward, and to put the country on its guard against the hasty adoption of partial plans, or such as are not clearly and evidently for the general good.



ON THE RIVER WELLAND,

and

BICKER HAVEN.

THAT the outfall by this river was formerly deep and good, will not be doubted, though the written authorities for it are but scanty,

THE great distance between the ancient banks at Fosdike Wash, and the discovery at Spalding, in 1696, of jetties, which supported an old bank, at more than 20 yards from the present, shew that this river was once of considerable capacity. What contributed in no small degree to the support of it was that inlet, called Bicker haven; a noble receptacle for the tide, which, in its return to the sea, joining the ebbs of the Welland and Witham, would powerfully scour out the mouths of these rivers, and keep open an excellent channel into Boston deeps.

THE history of this inlet is little known; but that it was capacious is evident from the distance between its lofty banks, which are yet visible up

to Bicker, and very high near the Turnpike road, by which they are crossed between Sutterton and Gosberton. That a considerable body of land waters passed off this way is probable. That it was a receptacle for the tides is certain. In the time of the Conqueror, the Abbot of Peterborough had upon its banks 16 salt pans in the parish of Donington; * and, where the banks of this haven run by Gosberton, some of the more elevated parts are now called *Salt-hills*, as are others of a similar kind at Fleet, Holbeach, Wainfleet, and other places, where salt, it is supposed, was made in the time of the Romans. † Of the land-waters that fell into this haven a part, no doubt, proceeded from Hammond-Beck, which, by smaller drains, perhaps, conveyed a portion of the waters from Car Dike. But it is highly probable also, that a great part of the Sleaford Water, or Kyme Eau, ran by an ancient creek, named the Skirth, which had its rise at or near Kyme, and which, as it ran across the fen in a southerly direction, probably conveyed this water into Bicker haven, through Hammond Beck, or by some channel the traces of which are now nearly, if not entirely, lost. Near Swineshead Drayton banks are yet

* Dugdale.

† Stukeley.

visible, indicating a channel of former times. Between them some of the fen, and upland waters, probably ran to Bicker haven. High and strong as the banks appear to have been, it is, however, likely, that they were not sufficiently so; for, in that part, which is called Wigtoft-marsh may now be seen proofs of considerable breaches, where the rapidity of the current scoured vast cavities in the marsh.

Mr. Atkins, a noted commissioner of Sewers, and whose authority has generally been admitted, bears testimony to the former goodness of the Welland. In his report of its state in 1618, he says, (see Badeslade p. 13.) "Spalding of old time was best of three outfalls,* now the worst; "lost by winning certain several marshes to the "sea-ward."

It will not be doubted, then, that formerly the Welland and Bicker haven were deep and good; and to me it appears more probable, that their ruin was occasioned by the injudicious management of man, than by any natural tendency to decay.

* The other two to which he alludes are the Nene and the Ouze.

It is at the head of the bay, between the Welland and Nene, where this tendency to silt up is strikingly visible. There, during the last 2000 years, a prodigious tract of fertile marsh-land has been gained from the sea, and there it will continue to accumulate, so long as the Welland and the Nene are permitted to retain their present channels.

THE natural tendency of the floods and ebbs in the bay may be discovered by any one who takes a view of it at low water, and may indeed be gathered without the peril of such a voyage. The bare inspection of Mitchell's Chart may convince any one, that the currents endeavour to preserve two principal channels; one on the east side for the waters of the Ouze and Nene; the other westward, for the Witham and Welland. And here I would impress my reader with a remark, which should, I think, be regarded as an axiom:—That every work, which tends to promote the preservation of two such distinct channels, and to diminish their communication with each other, will finally prove advantageous to them both, and to the fen-country in general.

OF the injury done to a river, and an extensive tract of country, by robbing the outfall of a

portion of its waters, there are many remarkable instances on record. One, which relates to this river, is that of the earl of Exeter, who undertook, about 200 years ago, to drain Deeping-fen by conveying the waters from thence by *Westlode*, under the bed of the Welland, and so by South Holland to sea. This was an improvement to Deeping fen; but, says Badeslade, p. 20. "By " this means the river of Welland, which before " was but feeble and weak, became below Spal- " ding almost no river at all;"—And it is stated by Sir Clement Edmonds, in his report of a view taken in 1618, that " The river Welland was " found to be a very fair, open, and clear river " down as low as Crowland, but from thence to " Spalding very defective,—and from Spalding " to the meeting of this water with the river of " Glen, almost silted up for want of dikeing, " and a current of fresh water to scour the chan- " nel;——". In this lost state of the Welland, the waters were forced to seek a passage to sea by other channels. Part of them joined the waters of the Nene, and passed through Wisbeach, and a still greater portion were driven to the Ouze, and so took their course by Lynn. Thus it appears, that a country, many times as extensive as Deeping-fen, was inundated, and the Welland-waters

compelled to run five times farther than they ought to have done.

ANOTHER remarkable instance, immediately relates to the country under consideration. A principal cause of the total loss of the Witham was the diversion of a large portion of its waters, with a view to the drainage of a few acres near Billingham. The experiment proved not only not successful but ruinous; for the lands were not drained, but the bed of the Witham fell into immediate and rapid decay, and in less than sixty years was turned into corn fields. But more particulars of the loss of this river will be hereafter stated.

OF the causes, that led to the total loss of Bicker haven, there is, as far as I am informed, no existing account. The breaches in its banks prove, however, that its waters were not confined, so as to flow in their proper channel; and wherever that is the case, upon a low and sandy shore, no tide-river can long be kept open. If, as seems probable, this haven was considerable in the time of the Conqueror, it is likely that it fell into decay soon after; for it is stated by Dugdale, (*Hist. Imbank.*) on the authority of Ingulphus, that, in this reign, ten Oxgangs were waste in *Algarekirk*, by reason of the sea's inundation.

The banks, that were at this time broken, remained, perhaps, long in ruins; for, at such a time, when the sceptre was seized by a foreign tyrant, and the lands distributed amongst his followers, it is not probable, that works of drainage and imbankment would be attended to.—In that case, the banks of this haven would fall into decay; as sands would be thrown into it by the tides, and the bottom, in a few years, would be raised to the general level of the country, as, in our own time, we have witnessed in the old river Witham. But the silting up of this haven was, no doubt, partly owing to a decreased supply of land-waters; for, by Dugdale, it appears, that, in the reigns of Henry III. and the two first Edwards, the banks, ditches, gutters, bridges, and sewers, in Kesteven and Holland, had fallen to decay, and were the subject of repeated presentations.

AMONGST these, however, no mention is made of Bicker haven; and, therefore, it is not unreasonable to suppose, that in the above reigns its state was past remedy. That it was silted up between the years 1080, and 1250, to me appears most probable. Considerable marshes, it seems, were formed in these parts, about the time now spoken of, as appears by Dugdale, who relates a dispute, in the year 1342, concerning 340 acres

of marsh-land which the sea had left in *Gosberchirche* (Gosberton), and which had united to the ancient marches.

CONSEQUENT to the loss of this haven would be the formation, or considerable increase, of the Holbeach and Gedney marshes.

It appears, then, as far as I have been able to collect information, that, after the loss of Bicker haven, until the view which was taken of the Welland in 1618, it became worse and worse, so that the Comissioners at that time (as stated by Sir Clement Edmonds, in Badeslade's history) "were forced to carry their boats by cart the space of three or four miles, to Fosdike, (where great ships lay at anchor) for want of a current at low water to carry them down the channel." "And the inhabitants of Spalding did complain, that they had no water in the river to serve the necessary uses of the town, but such as was unwholesome, by reason of the shallowness thereof; which was less than half a foot deep, two miles below the town, where the Commissioners now in the view rid over."

SUBSEQUENT to the above period, and, as I understand, to remedy this lost state, a cut, four miles in length, was made from Spalding to the Reservoir, and through this, the tides, unob-

structed by a sluice, were permitted to take their course. What were the immediate effects of this work I know not, but certain it is, that, since the interior works of drainage have been attended to, and the fens partly inclosed, the outfall by the Welland is much improved.

DURING the last 30 years, the marshes, particularly on the west side, have considerably increased, and the channel is become deeper; so that, at low water, there is now about three feet, to the distance of 6 or 7 miles below Spalding, and from thence to the mouth of the Welland, or what is called the set-way, there is generally one to two feet water, and the channel is never quite dry.



HISTORIC SKETCH

of the

CHANGES OF THE WITHAM.

IN its original state the Witham was probably entitled to rank amongst the secondary rivers of Great Britain; but, like all tide-rivers flowing through a flat country, it appears to have lost much of its former size.

At present, the surface of the marshes below Boston is little less than that of the bare sands, which are covered by every tide; but certainly this was not so at the time of the first imbankment. Then the bottom of the river being much lower than at present, the indraught of the tides would be great, and, it is probable, that even as high as Lincoln, the water would rise many feet. Such a vast body of ebb-water, moving with accelerated velocity in its retreat to the sea, would preserve a noble outfall, at once broad and deep. In its course through Boston, it would then move, as,

by Leland, it is described to have done,—with the swiftness of an Arrow. Such a sweeping torrent would not suffer the formation or existence of much marsh-land within its banks; and it is probable, that this was not formed in any great degree, before the fenny state of the country took place.

THERE is reason, I think, for believing, that formerly, perhaps when the Romans had a station at Lincoln, this river admitted ships of considerable size to sail thither. Such an opinion receives support from the discovery of a large anchor, which was found there at a considerable depth, and also from the following circumstance. On digging for a foundation to build a house (late Mr. Morris'), at the upper end of the main street in Lincoln, a boat was discovered, which by a chain and lock was fastened to a post. This spot being many yards higher than the middle of that valley, through which the Witham runs, such a discovery in such a situation was little to be expected. If, however, it be admitted (and why should it not), that this boat had been moored at the side of the river, and sunk, and silted there, the channel must then have been both broad and deep. This receives further confirmation, too, from Dugdale,* who states that great

* Hist. Imbank. 2 Edit. p. 169.

vessels anciently passed from Boston to Lincoln, as affirmed by tradition of the inhabitants, and that large ribs of ships had been dugged up.

AT Boston the old jetties, lately found near the market-place, and the high ridge that runs through a great part of it, and which was probably once the bank of the river, indicate its former width in that part. A little lower down are jetties which, but 80 years ago, supported the banks of the river, and are now buried in marshes 50 yards from its brink.

THAT the Witham is much narrowed needs not to be insisted on. It is of more importance to know, *how* it came to decay, and of still greater to point out how it may be improved, or how it is likely to be injured. It cannot, therefore, be a matter of a slight importance to shew the impropriety and the danger of prosecuting plans, not founded on great local knowledge and the soundest sense.

THAT the Witham, in former times, suffered less than the three other rivers that fall into the great bay, is, I think, probable, because it does not appear, that canals were made to turn its waters to sea by any other channel. It may be supposed, then, to have remained deep and good,

during some hundreds of years, whilst the other three, principally by mismanagement, were alternately going to decay.

THIS river, however, though not formerly injured, perhaps, by improper attempts at improvement, was, with every other in the kingdom, whose existence depends upon artificial banks, liable to suffer in the many wasteful periods of the contests of tyrants which disgrace our history. At such times the banks, being neglected and broken, afforded a free passage to the tides and upland waters to cover the fens, and there remaining stagnant, instead of passing by the channel to sea, the tides acquired an ascendancy, and deposited silt faster, than the remaining quantity of ebbs and freshes could scour it away.

THAT, in this river and the adjacent country, there have been several periods of amendment and decay, appears from the following list of dates and events, collected from Dugdale's History of Imbanking and Draining, and from other authorities.

BETWEEN the years 1100, and 1135, a great part of Holland was planted with trees, and became a forest; which is a proof that the land was then well drained.

IN 1121, and within the same period, Henry I. caused the Fosdike, a canal between Lincoln and the Trent, which is supposed to have been a Roman work of the first century, to be cleaned and made navigable.

IN 1178, there was a very great deluge in Holland, the old sea-bank being broken and the whole country destroyed. But this irruption of the sea having happened in South Holland, it is probable that the Witham and adjoining fens were not much affected by it.

THAT Boston (and no doubt the adjacent country) was in a flourishing state in the beginning of the 13th. century appears from the comparatively heavy tax paid by its Merchants to the foolish tyrant, John, in the sixth year of his reign.*

IN the reign of Henry III. perhaps about the year 1240, it was agreed, that Haute-Huntre fen should be divided into Townships; a further proof of good drainage in this part.

* For the *Quinzeme*, a tax raised on the fifteenth part of lands and goods, there was paid by the

Merchants of London	- -	£ 836,
of Boston	- - -	780,
of Len (Lynn)	- -	651,
of Southampton	- -	712.

Rapin, Vol. I. p. 346.

IN 1248 or 1250, this distribution was probably no longer adhered to, as there appears to have been a great inundation of the sea, and much of Kesteven and Holland were drowned, owing to a neglect of the banks and other public works.

IN 1280, from a neglect of Sewers and other works, the fens between Swaneton and Donington were drowned.

IN 1281, Haute-Huntre fen from the same causes was inundated.

ABOUT 1288, there was another great inundation, and most of Boston was drowned.

THAT, in 1316, Kesteven and Holland were in a ruined state, appears from the Commissioners of Sewers then making 21 presentments of different places and persons.

IN 1322, Forty thousand acres were drowned in the fens of Holland.

THAT, in 1342, the country continued to decline, appears from the petition of Gilbert de Umframville, Earl of Angos, to King Edward III. stating that the "Ee of Kyme, betwixt Doc dyke" and Brentfen was so obstructed by mud &c. "that ships laden with wine, wool, and other merchandize, could not pass as they used to do—." About this time also the Fosdike, be-

tween Lincoln and the Trent, became obstructed, after having been navigable more than 200 years.

THAT in 1367 the banks of the Witham were defective, appears from an order of the Sewers to repair them from Marton Dyke to Boston. That the river was then good, and the country in a prosperous state is, however, my opinion.

THAT the Witham was navigated by great ships in the 14th. and 15th. centuries will not be doubted, when it is considered, that Boston then carried on an extensive commerce, chiefly with Flanders, in the export of wool, and woollen goods, and in the import of the produce and the manufactures of foreign countries.

IN 1474, the Hans or Steelyard Merchants formed an establishment here; which is a proof that the place and river were suitable for their purpose.

TOWARDS the close, however, of the 16th. century, when these merchants and their trade was at an end, the commerce of Boston, and the prosperity of the country, must have declined; and it seems probable, that, in consequence, there must have been a neglect of works essential to the preservation of the river. Its trade being lost, the motives to labor for the security of a country,

which could not vend its staple commodity, must have been few and feeble.

IN the 16th. century, the drainage of the country is said to have suffered much, by an unhallowed act of the "DEFENDER OF THE FAITH"; a prince of whom it has been said, by a late historian * that his vices were more beneficial to mankind than the virtues of others.

THE number of religious houses, bordering upon the Witham, was considerable, † and, as it must not be denied, that their spiritual tenants were assiduous in improving their lands and attending to the works of Sewers, so it will not be

* Dr. Henry.

† Of these there were six at Boston; but historians have not directed us to the site of them. It is, however, probable, that the Dominicans, or Black-Friers, whose house was burnt down in 1288, occupied the ground between Spain-lane and Sibsey-lane,—that the house of the Franciscans, or Grey-Friers, stood behind the Grammar-School and the Farm-Yard of T. Fydell Esq.—that the house of the Augustines was near St. John's church, and that the Carmelites, or White-Friers, had their house and gardens upon the ground now occupied by Mr. Gee and myself. The site of the Priory, said to have stood near the sea, I have not learnt; nor have I been able to ascertain to which of the religious orders that house belonged which is now the residence of Mrs. Pacey. It is called a Friery, but it was, perhaps, the Nunnery mentioned by Buschings.

doubted, that these would be neglected, and the drainage suffer, when the HEAD OF THE CHURCH seized upon its revenues, banished the miserable proprietors, and even denied them the luxury of eating or sleeping in their own *Porcarium*. *

ABOUT 1601, in the reign of Elizabeth, considerable exertions were made to bring the waters of South Holland into the Witham; and, for that purpose, a new gowt was built at Langare, † and another at the end of Hammond-beck, between Boston and Skirbeck-Quarter. The effects of these gowts would certainly prove advantageous to the Witham. To the Welland, however, it is likely, they were injurious, and contributed to reduce it

* What a revolution! How changed from that state, when Brother Lawrence Chateres, cook to Croyland Abbey, expended, at his own cost, £ 40, (equal to £ 400, at this day) in supplying the Monks with Almond-milk on fish-days! J. P. Andrews.

† Langare, Langrick, (now called *Gill Syke*) is probably a corruption of *Long Creek*, as it was the largest and longest creek in the fen. Its direction was nearly East and West, and its waters were discharged into the Witham about a mile above old Langrick-ferry, so called perhaps from its proximity to the creek.

Langare gowt consisted of 4 brick tuns or arches, with doors towards the haven, into which the waters frequently rushed with such impetuosity, that their roaring might be heard more than a mile.

to that lost and ruined state, in which it was found in the year 1618. It seems probable, then, from the works carried on at Langare and Skirbeck-Sluice, that the Witham was improving 200 years ago.

FROM a paper in the Philosophical Transactions, No. 223, it appears that, at Boston, 100 years ago, the rapidity of the tides and force of the *hygre* injured the banks and quays, and endangered the town itself. A few years subsequent to this period, I have authority for stating, that, at the distance of 5 or 6 miles *above* Boston, the spring-tides rose nearly 10 feet, although at that time in the banks were breaches, through which the waters ran into and out of the fens.* The channel was then said to be declining, as well it might, from such a constant deprivation of ebb-water; for, from the channels of such rivers as are found upon this coast, not the smallest portion of either sea or land-waters should be taken.

To shew what was the state of the river but 80 years ago, I quote from a pamphlet written

* These breaches were frequently occasioned by neglect of the banks, but it was not unusual for the fen-men, in the Spring of the year, to cut the haven-bank, a little above Brothertoft, for the purpose of carrying off a part of the waters.

by N. Kinderley in 1751. " Boston Haven
" (says he, p. 51.) is worse than it was ever known
" to be; for, whereas 30 years ago (1721) a ship
" of 250 Tons could get up to Boston Town,
" now even a small sloop of but 40 or 50 Tons,
" and which draws but 6 feet water, cannot sail
" to or from the Town, but at a Spring tide—."

FROM the Journals and Reports of the House of Commons, 1735 and 1736, it appears that then between Lincoln and Bardney, the channel in most places was from 60 to 100 feet broad and $4\frac{1}{2}$ feet deep; that at Chappel-hill the channel, for several miles towards Boston, was not more than 20 feet wide; that the banks were down and the low grounds overflowed.

As it appears, then, that, in the short period of 30 years (from 1721 to 1751), the entire ruin of the Witham was effected; that from being navigable for great ships, it became almost lost (the bottom of the river being 10 or 12 feet higher than at present); we are naturally led to enquire, what cause, in so short a time, could produce such an effect.

THIS effect did not arise from the labours of man, aiding the influx and reflux of the waters in their natural channels: it did not arise from

the tendency of natural causes, which some suppose exists, whereby the rivers and the bay itself, are by degrees more and more choaked up: but it arose from neglect and mismanagement. It was the result of error, which, in a less or greater degree, has pervaded most of the works, carried on in the fens from the first attempt at improvement down to the last work of importance, the South Holland drainage.

WHEN the waters of the East and West fen were diverted from their ancient entrance at North Gowts, so as to run by Maud Foster's drain, the Witham, it is probable, would become more shallow at and just above Boston. Of the time when this change took place I am not accurately informed; but it is chiefly to the work, which I am about to mention and to censure, that I attribute the loss of the haven above Boston, the necessity of cutting a new river, the erecting of a sluice without necessity, and all the endless expences, which it has created, and which are ever likely to be incurred in consequence.

EARL Fitzwilliams, after repeated and fruitless applications to the Commissioners of Sewers to drain his lands,* called Harts-grounds, a small

* Reports of the Commons' 1736.

fract on the north of Kyme-eau, undertook the work himself, and for that purpose, about 80 years ago, he cut the North-forty-feet drain. The water was conveyed to this new drain through a sunken tunnel under Kyme-eau, in the same manner as the Westlode was under the Welland, and the consequence was not less ruinous. Many fen-men saw and foretold the event; but his Lordship's wisdom, or interest, rose superior to the common sense of common men, and the work was carried into execution. The consequence quickly justified the prediction of these plain unlettered men. Holland fen became totally drowned, and the river Witham completely lost. Nay so inadequate were the means employed to the object in view, that, when this new drainage was completed, his Lordship's lands were so much oppressed, that a man named *Stotherd*, his Lordship's tenant there, actually cut his own banks, and thereby threw the water into Holland fen.

By this North-forty-feet drain, which opened into the haven just above Boston, vast quantities of water were discharged, which used to enter through the Gowt at Langare, and many small Sykes, and in its course assist in scouring away the sediment brought up by every tide. But it might have been seen by every one, that, when

this new direction was given to the waters, it must follow, that that portion of the haven through which they used to flow would become shallow and bad. Such, we find, was actually the case, and so completely was the Witham lost, that, according to the report of Mr. L. Edwards, and others, in 1761, there appeared no remedy but to cut a canal, such as is the NEW RIVER.

To render this work as complete as possible, it was the opinion of that Surveyor, that a sluice should be built, where the canal should be united with the Witham. Opinion was divided as to the spot most proper for such an erection, and hence arose a strong contest between the country-interest and the corporation of Boston. It was the rational opinion of the latter that drainage would be equally perfect, and navigation less impeded, if a sluice should be erected in the place of Boston bridge; on the other hand this spot was objected to under a mistaken notion that the corporation had some local and sinister views to promote, and to which the country-interest would be sacrificed. *

* Corporations were the invention of *Lewis le gros*, a fat Frenchman; and it is not unusual with many persons to suppose, that the Members of these bodies waste all their funds and much of their time in eating and drinking. I am not the panygyrist of

THE country interest prevailing, a sluice was to be erected any-where, except at the Bridge, and about half a mile above it was the place fixed on.

Looking to that plan, which would best assist the general drainage, it was, I believe, the original design of the Surveyor to carry the proposed canal in nearly a direct line from Boston to Chapel-hill; but here again a plan, which was wise and calculated for general advantage, was obliged to be abandoned to the opinion, or the interest, of two individuals.

To oblige Lord Monson, the canal must be turned far from a proper direction, so as to run by Anthony's Gowt; and, to accommodate the Earl of Stamford, it must go off from thence, at nearly a right angle, that his Lordship's

Corporations (for I believe the days of their greatest utility are long-since past), but I observe Country-jealousy is ever watchful over *Corporation-sagacity*, and *Corporation-power*; as if these bodies possessed the former in a greater degree than an equal number of men not incorporated, and as if the influence of the latter could accomplish every thing. I lately heard it irrationally asserted, that, though it should be ever so much for the interest of the Country, that the East fen should be drained by Wainfleet, yet the Corporation of Boston would be able to prevent it.

property in the Ferry at Langrick might not be diminished. *

THE direction of the canal and situation of the sluice being settled, and an Act of Parliament obtained, the foundation stone of the *Grand Sluice* was laid by Charles Amcotts Esq. March 26th. 1764, and on the 5th. October 1766 it was opened by Mr. Langley Edwards, the Engineer. On this occasion were assembled at Boston, many of the

* These Noblemen should have been compensated in any way rather than by giving the canal an improper direction.

In settling the direction of the Welland-canal, I have been informed, a similar instance of improper pliability occurred. It is said that the original opinion of the surveyors was to carry the projected canal at some distance from Fosdike Inn; but as this was objected to by the proprietor of the Inn, who claimed an exclusive privilege of *guidage* over the Wash (a claim *not allowed to be valid*), it was agreed, that the course of the canal should not be as was thought most proper, but that it should run near to the Inn.

Another instance of this nature, but infinitely more injurious, relates to the Grantham canal.

Had the country been permitted to reap the advantages that offered, and had that canal been cut to Newark instead of Nottingham, its length would have been but 15 miles instead of 30, the lock-does about 2 shillings a ton instead of 4 shillings and 6 pence, and the town and neighbourhood of Grantham would have been supplied with coals at about one-sixth less than by the present course.

nobility and gentry from remote parts of the kingdom, and the number of spectators was estimated at not less than ten thousand.*

To the time when the Witham canal was opened, the haven up to Boston had continued in nearly the same state as described by Mr. Kinderley in 1751; but, in a few years, a considerable amendment became visible, and vessels of from 6 to 8 feet water passed freely with every tide, whilst at the Spring tides there was found a flow of 12 to 15 feet at the town. Such, in general, may be said to have been the state of the navigation up to Boston of late years; but, in a season of unusual wetness, like the last, there is not less than 8 feet at low water in the upper and contracted parts of the river, and about 2 feet in the lower, and expanded parts. Hence, in these parts, from their great width, the ebbs and floods

* Great disappointment was experienced by many who came to witness the opening of this sluice, and then it was that a stranger composed the following splenetic verse.

Boston, Boston, Boston,
Thou hast naught to boast on,
But a *Grand Sluice* and a *high Steeple*,
A proud, conceited, ignorant people,
And a coast where souls are lost on.

pursue different courses, much to the prejudice of drainage and navigation

To the canal, or new river Witham, to imbankments, and the general improvement of the upper country (and perhaps not in the least to the Grand Sluice), is to be ascribed the favourable change, which has taken, and is yet taking place, in the haven below Boston. Previous to the commencement of these works, there were sometimes shifting sands and two channels as high as the Bowling-green; whilst, in the lower parts of the haven, the marshes were much larger and the channel more crooked than at present. The reversed state of the upper parts of the haven appears to be a natural adaptation of its capacity to that of the new river, and the water-way through the sluice.

To account for the change in the lower parts, it may be observed, that, formerly, when the river was in a bad state, the sands high, and the channel almost lost, the ebbs usually ran round by the *bights* of the river, and then it was, that the marshes increased upon the opposite or projecting shores. But now, in its improved state, we see the reverse taking place. The channel is becoming more direct, and two of the largest marshes in the river are continually yielding to

the pressure of the ebbs and freshes, which is an incontestible proof that this power is gaining strength. In the course of a few years, that small marsh, through which the waters run from Wyberton or Slippery gowt, has not lost less than 60 yards, chiefly by the power of the train or counter tide, which frequently runs there with great rapidity during the first quarter-flood, and the opposite or corporation-marsh has lost full double that number at the point, besides being much diminished on the south and north sides, and particularly on the latter, by the frequent and heavy pressure of both ebbs and freshes. By these powers it is that the upper side of Fishtoft-marsh is also continually wearing away, whilst the lower side, or Hob-hole, is much diminished by the flood tide. But the greatest loss of marsh appears to be that of Mr. Sheath's, on the west side of the river, extending from opposite to Toft-jetties, almost to Wyberton-roads. There the pressure of the flood-tide has made, and is yet making, destructive progress, as appears by a row of sunken jetties (formerly its defence), the stumps of which are now about 100 yards from the present bank, and stand to the south and east of the present channel.

SINCE the erection of the Grand-sluice, it is certain, that, from thence to Rush point, all the marshes have considerably increased, whilst those lower down are daily wearing away.

THIS change *in the upper part of the river* has facilitated the haling of vessels there, but, *in the lower part*, it is now become so wide, that haling is frequently impracticable. *Here* the floods and ebbs having each a channel, and these channels continually shifting (according to the velocity of the currents, or as the tides and freshes predominate), it frequently comes to pass, in the summer-months, that at low water there is not six inches in the channel, and sometimes it is quite dry. *There*, in this wide part, so great is the expansion of the stream, during the flowing and ebbing of the tides, that the force is much diminished, counter tides are formed, and vast beds of sand deposited.

To some persons the shallow state of this part of the haven is thought an evil of dangerous tendency, threatening the drainage of the country, and the commerce of the port of Boston. To me it appears that no such danger is to be apprehended; but that the process, now going on, of sweeping away the corporation and Fishtoft marshes, though prejudicial for a time, is a salu-

tary work, and will finally (though unaided by art) form a good and deep channel, in an improved direction. During the last 20 years such has been the dissolution of these marshes, on the upper sides, and at the point of the former, by the power of the ebbs and freshes, that the period is probably not very distant when the whole will be swept away, and that, instead of the waters taking such a circuitous course as at present, they will open a channel, not very remote from a direct line, between Skirbeck church and Fishpost creek.



On the Improvement of the Witham,

AND THE

Port of Boston.

TO remedy the inconvenience, arising from the improper width and crookedness of the river, and to facilitate the navigation, it was long since pointed out to the corporation of Boston, that a channel ought to be cut through the corporation and Fihstoft marshes, and that thereby, with a little labor, would be at once accomplished a work, which by natural means is going on, and in time will certainly be completed.

WHETHER the corporation did or did not approve the proposal, or whether they are competent to make such a change, I am not informed; for of the nature of their jurisdiction I know but little. But that the plan was wise I have no doubt; and even yet it merits to be carried into effect, as a cheap and certain improvement, and one by which the naturally improved state of the river will be anticipated perhaps half a century.

As the distance through both these marshes exceeds not 1000 yards, the expence of cutting an ample channel would be as nothing, when compared with the advantages to be gained.

SHOULD it be demanded what these advantages would be, I state the following, which, to an eye but little acquainted with the subject, will, I believe, appear sufficiently important to justify such a work.

Local Advantages.

THE parishes of Wyberton and Skirbeck would be relieved from an enormous expence for the support of their banks; an expence, to which they have long been subject, and which is increasing.

THE cultivated marsh belonging to Mr. Sheath, of which many acres have already been swept away, and of which more must otherwise follow, would be preserved from further diminution, and would no longer furnish a supply for the formation of sand-banks in the river.

General Advantages

would arise to the country which is drained by the Witham, as well as to the Commerce and Trade of the port of Boston.

WERE a new channel opened through these marshes, there is little doubt that the floods and

ebbs would readily take their course through it, and would quickly grind a channel of sufficient depth through those high and shifting sands, which hold up the water in the last quarter's ebb.

WHEN the currents should become entirely confined to the new channel, and the old ones be silted up, the tides would bring up less sand than at present; for a great portion of that which, in a dry season, is lodged in the upper part of the river, and sometimes, to the height of nearly 10 feet, against the doors of the Grand Sluice, consists of loose and shifting sands, formed by dissolved marshes.

THE drainage would be then so complete, that it would be practicable to run the floor of the Grand Sluice dry, though there is now seldom less than 3 feet water on it.

THE commerce of the port would be benefited by—

the earlier coming in of the tide,
the longer flow of it, *
the greater depth of water,
the direct course of the channel,
the improved haling way;

* When the tide was permitted to flow up the Witham, the flood-tide continued running through Boston about 3 hours and

and in consequence of these advantages, it would rarely happen, that vessels would lie between the town and the Scalp. Nay they would *generally* (as indeed is now *often* the case) be able to pass from the sea to the town, or the contrary, in a single tide.

It seems scarcely necessary to state what is very evident, that, by facilitating the conveyance of commodities, the *producer* of them obtains a higher price, or a quicker return of profit, whilst the *consumer* is enabled to purchase more cheaply.

By an improved navigation the Farmer would not only sell his grain at Boston for more money, but would be supplied with coals, timber, and every imported article, at a cheaper rate.

As ships, bringing coals, and carrying away corn, would seldom deliver, or load, at the Scalp; barges would be less in use; and the embezzlement of commodities would be consequently diminished.

THAT the waters would readily abandon the old channel, and take the new, is highly probable;

a half. Now, since the erection of the Grand Sluice, it seldom *runs* 30 minutes, though the water continues to *rise* about 1 hour and a half. When it ran it scoured. Now it is obstructed the silt subsides,

because the flood-tide sets strongly against the marsh by Fishtoft-creek, and the ebbs and freshes against the upper sides of both marshes. But if, from causes unforeseen, it should follow, that the waters would not in a little time confine themselves to the new course, it would neither be impracticable nor very expensive to direct them.

For the improvement of the river Nene a cut, 3 miles in length, was made, about 30 years since, from West marsh (5 miles below Wisbeach) to Peter's point; and, though the tendency of the ebb was very strong towards the *old* channel, yet by jetties and vast quantities of stones being properly placed, it was compelled to take the *new*.

IN the Thames, the jetties at Purfleet, receiving the force of the ebbs, give the current a *direct* course, instead of a curved one, which it would take, were there no jetties there; and, at the other end of the same reach (—namely Long Reach), the jetties at Greenhithe have an effect exactly similar upon the floods.

BUT, to come nearer home: In some reaches of the Witham, the waters are compelled to take a course almost at right angles with the last reach, and which they would not do, were they not directed by jetties.

SHOULD artificial means be necessary to direct the waters, let it be remembered that they are to be turned from a crooked to a straight course; a work far easier to be accomplished than the contrary.

IF we may judge by the present course of the currents, it appears, that the parts of the river, where assistance might perhaps be required, are the upper and lower points of the marsh opposite to Toft-jetties, and perhaps at Rush-point. A jetty, or stone work, or both, projecting in a N. W. direction from the upper point of the above marsh, would catch the flood-tide, which frequently sets strongly to the Westward from Toft-jetties; and a similar work at the lower point would direct the ebb-waters by the new channel through Fishtoft-marsh. A work, projecting from Rush-point towards the S. E. would also catch the ebbs; and such projections, favouring the subsidence of silt within them, it would follow, that that deeply indented part of the river between Rush-point and the point below Slippery gowt would soon be silted up, and in time become firm marsh.

OF the practicability of making and maintaining a tide-river in a direct course, and with little

expencc, no doubt need be entertained. That at Spalding is some evidence of it. There the tides flow through a straight cut 4 miles long, and sometimes rise to the height of 8 feet. But the most complete improvement of the sort, is, perhaps, at Chester. There the state of the Dee, in 1674, appears to have been worse than that of the Welland in 1618; for it was so choaked with sand, that vessels of 20 tons could scarcely reach the town, and ships of burthen were obliged to lie 10 miles lower down. In this lost state the port of Chester continued until about the year 1740, when, a company, under the sanction of Parliament, caused a canal to be made 9 or 10 miles in length, and through which, though dug but 8 feet deep, the tides ran with such velocity, that, in 3 years, the channel was so scoured, as to admit ships of 200 tons burthen up to the city. The channel now is yet further improved; and ships of 350 tons sail up to the quays at Spring-tides, the medium flow of which is 15 feet, and the greatest 21. But, owing to their rapidity, it is thought safest for vessels of not more than 13 feet. Those who are unacquainted with the fact, and those, who from their partiality for canals and sluices, appear to think, that all rivers and outfalls are injured by tides, and that upland

waters alone preserve them, will probably be astonished to hear, that, at Chester, the back water is but small, and that it was by the grinding power of the floods and ebbs, confined in a canal, that this improvement was accomplished.*

SUCH an improvement having been made in the outfall of a river, possessing no advantages (of which I am aware) over the rivers Witham and Welland;—an improvement gained without sluices, and with a less supply of back water than these rivers possess, in proportion to the capacity of their channels and mouths;—it should seem, that to improve them, they require only to be narrowed, where they are too wide, and the tides to be suffered to take their course. To apply this, then, to the haven below Boston, and to render drainage and navigation there as complete as the nature of a level country will admit, I believe, that little more at present is requisite than to cut, through the beforementioned marshes, a channel of ample width for the passage of the waters. Such a work, I am persuaded, would so

* At Chester it is known that tides, under proper management, make rivers; in Lincolnshire it is believed, that they are always destroying them; and hence the *posse comitatus* is always at work to shut the door against "old ocean", by authority of Parliament.

improve the haven, as to preclude the possibility of a question about the best outfall; and it would no longer be usual (that it was ever necessary does not appear) to send to distant parts of the Kingdom for Surveyors and Engineers.*

As I have stated a cheap and easy method of improving the Witham, I shall dismiss, in few words, the scheme, recommended by some Gentlemen, of making a cut in a direct line from the Black Sluice to Wyberton Roads, and suffering the present channel to silt up between these two places.

HAD such a plan been proposed, when the haven was silted and lost, as in the year 1751, and had it been a part of the plan that no sluice should be erected, but that the tide should flow through the new cut, such a work might, per-

* These Gentlemen may be, and probably are, eminent for planning, and executing interior works of drainage and navigation; but I greatly mistake, if they are not less able to devise plans for bettering the outfall of the Witham and Welland than are many of the masters of ships, pilots, or fishermen, belonging to the port of Boston. These Surveyors are destitute of local knowledge; and, without this great essential, even the genius of a BRINDLEY would here be at a stand. It is, I am informed, the practice (and wisely so) of surveyors, who come to take levels here, and make reports, to found their reports upon such information as they can glean up from resident surveyors and other intelligent persons.

haps, with propriety, have been resolved on, as a dernier resort to save the country. Happily, however, the present state of the outfall requires not such a remedy. Recourse, therefore, to it is, altogether unnecessary. But should it be the opinion of some Gentlemen, that not only a canal should be cut, but that, as in the Welland-scheme, a sluice should be built at the lower end of it, I would remind such of the epitaph of the valetudinarian,

“ *I was well, I would be better, and here I am.*” The death of the valetudinarian was, indeed, a species of *felo de se*; but, to erect a sluice at Wyberton-roads, would, to the drainage by the Witham, be downright murder.

CONSIDERING it of great importance to preserve by one channel the waters in their course to sea, and that every drop diverted from that channel is injurious to the outfall, I also condemn the idea of cutting a canal from the South-forty-feet drain to Wyberton-roads, for the purpose of relieving that drain, when its waters are over-ridden by the Witham. That it is an evil is admitted; but it is a very partial one, and such a remedy would be productive of a far greater and more general evil.

ON THE IMPORTANCE OF THE

North Channel, or Boston-Deeps;

and on the Project proposed for

Changing the course of the Welland.

TO guard against whatever may appear in the smallest degree to affect this channel should be the first object of every one, interested in the preservation and the improvement of that portion of the country, which is drained by the Witham and by the Welland. But the necessity of preserving this channel has been, I presume, hitherto entirely overlooked, or the powers which have kept it open have not been attended to; for, otherwise, it is not probable, that experienced Surveyors should advise the execution of works, the direct tendency of which is to destroy the present passage to this channel, and ultimately to affect the very existence of the channel itself.

THE decided superiority in importance of the north over the south channel will appear from this single fact.

FROM the mouths of the Witham and Welland it is about *three times nearer* to deep water in the former than in the latter channel; and, in the former, the passage is by *a direct course* towards Wainfleet haven and the North sea, whilst the latter, running amongst shifting sands, enters by *a very circuitous course* Lynn Deep s. Among many advantages belonging to the North channel an important one is, its *unchangeableness*, though the entrance to it by the *clays*, does indeed, sometimes shift a little, as the different currents predominate. But, in the South channel, where the sands possess less firmness, they are frequently shifting from one place to another.* The vicinity, the excellence, and the security of its roadstead is another of its great advantages. Though the mouths of the Witham and Welland are faced with high sands, yet as

* Much of that vast bed of sand between the Welland and the Nene is of a blackish hue, and appears to contain a great portion of rich, slimy, mud, or slutch, quickly yielding to the power of a current, while, upon the shore of the North channel, the sands, possessing no such mixture, are firm and durable.

it is not more than three miles from thence to a roadstead in the North channel, which, at low water, is not less than five fathoms deep, the importance of preserving this channel cannot be too much insisted upon. Here ships ride out the heaviest gales; whilst, in the South channel, they are less safe, and are sometimes lost.

THE North channel is the constant and *invariable track of Colliers*, and even the Boston-vessels seldom navigate the South channel but with a fair wind.

OF the means by which the North channel is kept open, I have met with but one account, and that erroneous. Sir Cornelius Vermuyden, speaking of Boston deeps, says, "That the floods
" and ebbs of the sea maintain it, and the reason why it keeps so deep, is, that the ebbs
" which come over the sands which lie between
" Norfolk and it, come that way, and so make
" a deep there, which could not otherwise be
" possibly maintained. It is not the river of
" Welland and that of Boston could do it, they
" are but small waters, and the less powerful
" when they come abroad into a vast place,
" where they are not to be discerned; so that
" if it were not for the ebbs of the sea, it would
" soon decay." This statement is partly just, and partly otherwise.

It is certainly owing principally to the power of the floods and ebbs of the sea, that the channels in the deeps are maintained; but Sir Cornelius is quite mistaken (unless the ebbs have changed their course, and that is improbable), when he says, "The reason why it keeps so deep, is, that the ebbs which come over the sands which lie between Norfolk and it, come that way, and so make a deep there." The fact is, the ebbs do not come *from*, but run *towards*, the Norfolk coast, until they have fallen below the top of the Long-sand, when, running with increased rapidity, they keep open a broad and deep channel between it and Scullrig. Some Mariners knowing that the ebbs run not only swifter, but about one hour *longer*, in this channel, than in that between Scullrig and the shore,—take this course, and pass out of the deeps, when other vessels, sailing the latter way, cannot.

It being certain, then, that the channel of Boston-deeps does not depend upon the ebbs coming over the sands between Norfolk and it, but that it is by the power of its own floods and ebbs that it is preserved, how important is it to guard against any change, which may diminish the quantity of water running through it, and may thereby, endanger its existence!

IN the present state of the North Channel, the flood arrives at elbow buoy, through the upper end of that broken ground, called the *Clays*, as early as it does by the South Channel; and, the course being directly towards the Welland, it runs up the set-way, or entrance of that channel before it reaches the mouth of the Witham. That the flood has a stronger tendency to the Welland than to the Witham is very apparent in calms; for then it is not without difficulty, that ships, coming from sea to the Scalp, can be kept out of the set-way.

BUT it is rather by the power of the ebbs than the floods, that the passage through the *Clays* is preserved; for on the return of the tide, that vast body of water, which the Welland receives, sets through the *Clays* with great rapidity during the first half-ebb, forcing with it a part of the Witham-ebb also.

As the tide flows 20 miles up the Welland, whilst, up the Witham, since the erection of the Grand Sluice, it flows but 7, that river enjoys an advantage, highly favourable to its future improvement. The superior power of the Welland-ebb is principally owing to the greater body of tide-water, and the greater length of channel it has to run; for the celerity of a current increases, as

It proceeds, by the impelling power and weight of the superior waters.

HENCE I infer, that it must be to the continuance of the Welland-waters by their present course, and to the constant flux and reflux of the tides in that great receptacle, called the Wash, that we must look, as our only security for the preservation of a good channel to Boston-deeps, excellently serving the purposes both of drainage and of navigation.

BUT, should the Welland, that vast limb of the deeps, be cut off, what, it may be asked, is to give impetus sufficient to the returning tide to scour and keep open the channels below the Scalp. The united waters of the Witham and the Welland, when issuing through sluices at Wyberton-roads, would prove very inadequate to the purpose; and it would soon be discovered, that, were the tide shut out of both these rivers, or out of the Welland only, the effect would be the loss of the North Channel and the protraction of the South; for the strong clay of Boston Scalp would give the waters a S. E. direction towards Peter's Point. As there would be no indraught for the tides, and consequently no weight of ebbs, the currents would be feeble, the channel more crooked, and shoal-

water would extend to a greater distance than at present. In this case the flood-tide would come in later, the time of flowing would be shortened, and it would frequently happen, that vessels would lie in dangerous situations between deep water and the Scalp.

To carry on works, the tendency of which will be to lengthen the present South Channel, or to open a new one, is to counteract the silting up of the head of the bay; a process, which has been going on during the last two thousand years, and which, could it be promoted so that the *Roger* and *Northsand** should be united to the shore, would probably be no small improvement to the North Channel; for, as the floods and ebbs would then be confined within limits narrower than at present, it might be expected, that much of the sands, now lodged at the upper and lower† end of it, would be scoured away.

HAVING pointed out the importance of the North Channel, and the certainty that a ready communication with it depends upon the floods

* Between this and the sand upon the Gedney shore, the channel at low water is frequently not more than 2 feet deep.

† This might be an improvement to the outfall at Wainfleet.

and ebbs of the Welland, I might here close the subject, by asking all who are interested in the improvement of the country, in drainage, and in commerce, whether it would not appear wiser to preserve, and to endeavour farther to improve, the old channel of the Welland, than to totally abandon it, and, at an expence of £. 50,000,* to cut a canal and to erect a sluice the advantages of which must be admitted to be problematical

THAT the present channel of the Welland was capable of farther improvement, appeared to a late surveyor and engineer of acknowledged ability. It was the opinion of Mr. Grundy that the present cut should be extended from the reservoir across a marsh to Buffham's corner, near Fosdike Inn; and, I am informed, for that purpose an Act was obtained, and the ground marked out, but the plan, though apparently a wise one, was not carried into farther execution. Such a work, properly executed, would prove, I have no doubt, an important step towards once more bringing "*great ships*" up to Fosdike,† a work infinitely preferable to that, which requires

* Now estimated at upwards of £.100,000.

† In 1618, great ships rode at anchor at Fosdyke. Badeslade.

£50,000 to enable *little boats* to go down to Wyberton-roads.

Of the almost innumerable instances in the fen-countries of bold and erroneous undertaking, none, perhaps, were calculated to produce an effect of greater importance than the present project for changing the bed of the Welland; nor has it often happened that the merits of the most trifling public work have passed with less investigation. Even upon the banks of that river the wisdom of such a change seems scarcely to have been questioned; and not less indifferent appeared the Commissioners for the Witham, the Black sluice, and other drainages, as if no injury to their outfall could in consequence possibly take place.*

In the year 1792, it appears that a survey was made of the outfall of the Welland by Mr. Hudson, Mr. Golborne, and Mr. Maxwell,

*If any doubt was entertained, it was, I suppose, by the Corporation of Boston; for, on their account, in 1793, a survey and report were made by a Mr. Huddart, who was sent down for the purpose by the Right Honourable Sir Joseph Banks.

A copy of this report I have seen, and though I admit not the conclusions that are drawn; yet, considering the imperfect survey that was made, and that Mr. Huddart had no local knowledge, his report attests that he has a mind familiar with the business in which he was engaged.

and that, in their opinion, the ancient channel should be abandoned, and the Welland-waters carried by a canal into the Witham at Wyberton-roads, where a sluice should be erected to hold up the waters, for the purpose of inland navigation. The plan, proposed in a report, made by these Gentlemen, was readily adopted, and great advantages were anticipated. The proprietors of uncertain lands looked forward to a perfect drainage;—those possessing property adjoining to the salt-marshes calculated on the acres to be acquired by an imbankment,*—and probably some of the merchants and tradesmen of Spalding and other places, expected great advantages from an improved conveyance of their commodities. Certain it is, however, that though many approved the scheme, and though it was not opposed, either in the Country or in Parliament, yet it then was, and now is, considered by some

*However desirable it may be to Lord Eardley and others to acquire some hundreds of acres of valuable marsh-land; yet it is to be hoped that a liberal and disinterested spirit will be manifested, when it is considered, that this acquisition cannot be made but at an expence of probably more than £100,000, and with a prospect of materially injuring the outfall, the rivers, and the fens.

persons at Spalding, Boston, and other places, as extremely dangerous, and likely to be productive of more evil than good. It is asked, whether in heavy and continued rains the waters will pass as readily to sea as at present. Whether it will be always practicable to keep a sufficient supply of water for the purpose of navigation. Whether the sluice doors at Wyberton-roads will not in a dry season be silted up, as at the Grand Sluice at Boston. Whether, as the flow of water at Wyberton-roads will require sea-doors of not less than 30 feet in height, it will be easy to construct such as will not frequently be strained and unfit for service. Whether it will be practicable for ships, delivering Coals, &c. or taking in Corn, to lie at Wyberton-roads as they now do at the Scalp; and, if not, whether Barges, similar to those now employed, must not be used.

THE sum required to complete this work was estimated at £. 49,358 : 12 : 0,* a sum, which

* The leading surveyor and calculator in this business, has somewhat changed his opinion as to the sum which will be required, and he now estimates the cost at more than £100,000.

The reader is requested not to be astonished at such a trifling difference. An engineer being requested to report the sum necessary to open the outfall at Saltfleet, estimated the cost at £500. A Countryman, who lived on the spot, proposed to perform the work for £50—: he was employed, and completed it for £23!

probably would have been raised, had not the nation been plunged into war.

WHETHER, at some future day, this work will yet be accomplished, remains to be seen; but, that it is of a nature dangerous, perhaps ruinous, I have already stated, and, I doubt not, the more it comes under consideration, the fewer will be its supporters. To oppose it will be found, I believe, the interest of all persons implicated in the commerce of the port of Boston, and in the prosperity of the country, which is drained by the Witham and the Welland.

To oppose it will also be found the interest of those, who wish to see a farther extention of the marshes between the Welland and the Nene, and of all those who do *not* wish, that, at some future day, the country may be driven to adopt, for its salvation, that last, and even but temporary expedient, the plan recommended by Mr. Kinderley, near a century ago. *

* The plan proposed by Mr. Kinderley, was to unite the Welland to the Witham near Skirbeck, and from thence by a straight cut to convey the united streams into Boston-deeps, between Wrangle and Friskney.

Mr. Kinderley, it is admitted, was a man of skill in his profession, but it appears, that he, as is too much the case with

BUT is it not of importance to the Welland-Interest, to consider, that their present drainage, imperfect as it is, is in a great degree, *independent*, and that, it is capable of improvement, though the Witham should decay, or its waters be diverted:—is it not of consequence to them to reflect that, though the Welland should be brought to Wyberton-roads, there is no certainty, that the course of the Witham, by nature or art, may not be changed;—that it may not abandon its present crooked course; or that those, interested in the Witham, pursuing their own immediate advantage, may not turn that river from Skirbeck, in the direction pointed out by Mr. Kinderley:—and, lastly, is it not of moment to them to ask, what, in any of these supposed cases, would, at Wyberton-roads, be the state of the outfall of the Welland?

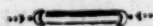
most men, viewed only one side of the subject.

For the purpose of drainage it would have been quite sufficient to have proposed to convey the united waters into Clay-hole, and for commerce it would have been much better.

Had Mr. Kinderley's plan been executed, it would frequently have been impracticable for vessels, in stormy weather, to have entered the river, or to have found a road-stead: frequent shipwrecks, of course, would have been the consequence.

But, against such a plan, a number of forcible objections may be alleged.

APPENDIX.



Depth of Water in the Witham.

	Apl. 16. 1798.		Apl. 30. 1799.		May 28. 1799.	
	F.	In.	F.	In.	F.	In.
On the threshold of the } Grand Sluice -	5	4				
On the threshold of the } Black Sluice - -	5	4	6	2	2	10
On the Apron of ditto			7	0		
A little below ditto -			4	0		
Something lower - -			8	0	9	0
At the first Mill - .	5	6	11	0	7	0
second ditto -	5	6			7	0
first stile - -	6	0	8	0	5	0
On Maud Foster's } threshold - -	5	8				
A little below ditto			9	6	2	10
At Skirbeck Church -	3	0			4	6
A little above the se- } cond stile - -	3	9	11	0	5	6
At the third stile -	1	6	8	0	5	0
Pudding-Pye house	1	2	7	6	3	0
Rush-Point - -	1	2	7	0	2	0
Corporation-house	0	10	6	6	0	6
Point	0	6	5	0	0	6
A little below Slippery } gowl - - -			5	6	0	6
Something lower - -			4	6	0	6

THE preceding table, shewing the depth of water in the Witham at three distinct periods, strongly marks the difference between the state of the channel in an ordinary and in a wet season; and also the rapid change that takes place on the freshes ceasing to come down.

THE soundings were made at low water, in the presence of the Black Sluice Commissioners, and were intended as a preliminary step towards an enquiry into the necessity and practicability of improving the river. The Winter and Spring 1798, not being attended by an unusual quantity of rain, the depths of water in the first column may be considered as indicating the general state of the channel in the middle of April.

ON the breaking up of a great frost, with rain, in February 1799, an extraordinary current came down the Witham, and so scoured it out, that, on the 30th of April, the bottom was found quite hard, and without sullage, from the Grand Sluice to Fishtoft-jetties. From this survey it appears that the upper part of the channel was scoured out to nearly twice its depth in the former year, and to three or four times the depth in that portion of it which lies between Skirbeck Church and Corporation-point.

THE third column points out a change rather remarkable, as it shews, that, when the freshes cease to run, the tides, in a little time, raise the bed of the river, especially in the broad parts, very considerably.

IN the space of 28 days the surface of the water was lowered 3 Ft. 4 In. and, up to Maud Foster's gowt, the bed of the river became somewhat heightened;—at Rush-point it had silted up considerably;—at the four lower stations all traces of a channel were gone, and the little ebb-water which was then running, expanded over a broad surface, and was not more than six inches deep,



ON THE PROPOSED BRIDGE

at

B O S T O N .

AT Boston there is a traditional account that the bridge over the Witham was formerly opposite to White-horse lane. When it was that a bridge was first built in the place of the present, I have not learnt, but the stone pier which now supports it, is probably the same that was standing in the reign of Henry VIII. when, as appears by Dugdale (Hist. Imbank. 2. edit. p. 203), there was a floodgate or sluice at this place, and, down to the year 1642, it is frequently mentioned in the corporation records. It is but a few years since the crooks, on which the doors hung, were remaining in the stone-work.

THIS massy pier, which occupies nearly one-fifth of the channel, was, it seems, considered by the commissioners of Sewers, a work of necessity, being built for strength, to defend the violence of the waters.* Whatever was the utility of the

* Callis on Sewers.

pier, in the ancient state of the river, it certainly is, at present, unnecessary; and not only unnecessary but injurious. Formerly it was of use as a break-water, to check the rapidity of the current, and to protect the quays, and ships riding there. Now, since the tide has been obstructed, no such aid is required; and, instead of answering any useful purpose, the pier has served to favor the formation of that great bank of silt which extends from the bridge to the Packhouse Quay, much to the prejudice of that wharf and the adjoining granaries.

To maintain a bridge over the Witham is the duty of the corporation of Boston, and for that purpose ample provision is in their hands. To preserve a sufficient water-way is the business of the commissioners of Sewers.

NOTWITHSTANDING the many pompous descriptions of Boston-bridge, by closet tourists and book-makers, an opinion has long prevailed that it was a disgrace to the town, and to the corporation, and that a new bridge was necessary. After many expensive repairs, the last of which, five years ago, cost £.500,—it has been resolved that a new bridge shall be built; but, whether of one, two, or more arches, whether it is to be a bridge of wood, of stone,

or of iron, are points, I believe, not yet determined. But, of whichever material a new bridge may be composed, it is *now* advisable that it should consist of only a single arch. And, as to the material, perhaps in point of cheapness and durability, and certainly of elegance, an Iron bridge is superior to every other.

WERE the present pier removed, and the water-way contracted *more* than the space which the pier occupies, it would be found that the waters would pass with *less* difficulty than at present. Vessels going through the bridge would be less exposed to danger, and the expence of repairing the pier would be saved.

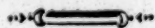
WHENEVER a new bridge is to be built, it may be wise to extend the abutment considerably at the west end, that the current may scour away that great sand-bank which I have mentioned, and improve the channel at the Packhouse quay.



ON THE GRAND SLUICE

at

B O S T O N.



STRONGLY doubting the utility of the Grand-sluice, believing that drainage would be more perfect without it and that navigation would be equally complete, and knowing that, in former times, engineers condemned the practice of building sluices in tide-rivers, I have been anxious to learn what were the motives that led to its erection.

By commissioners, surveyors, and others, the following reasons have been assigned. The sluice, they state, was neces ary,

I. BECAUSE the banks, some miles up the river, were so low and imperfect, that the tides would have run over them.

II. BECAUSE the ditches, on each side of the river, as far as the *salt-water* would flow, could not be supplied with *fresh* for the use of cattle.

III. BECAUSE, were the tides permitted to flow up the canal, it would quickly be silted up and lost.

IV. BECAUSE the retreat of the tide would cut away the sandy soil of the forelands, and in time endanger the banks.

OF these four reasons, the two first scarcely deserve notice, and the third, which appears to be the strongest, is partly obviated by the fourth.

TO the I. and II. is it not sufficient to say, If the banks are too low they may be heightened; and surely it would not be difficult to convey fresh water to the lands bordering on the Witham, to the distance of 8 or 10 miles above Boston. In reply to the III. and IV. I ask, Would the ebb-tides in the new-river be more powerful than the freshes, which, after 30 years experience, have not endangered the banks? And, if they *should* be more powerful, would not the newly subsided silt sooner yield than even the sandy soil of the forelands? But as the greatest rapidity of a current is not at the sides of a river, they are not found to suffer much, when its course is direct and the channel of a proper capacity.

THE state of even the most crooked part of the haven, from the Grand-sluice almost to

Rush-point, renders this evident. Between these places the waters are properly confined; and though, in wet seasons, since the new river has been cut, the ebbs are backed by powerful freshes from the upper country, yet the marshes have *increased*, and it is certain that not the *sides*, but the *bottom*, of the river is scoured away. The soil in the old and in the new river is exactly similar: partly sand and partly clay. But, if the force of the third reason be not entirely obviated, I would ask, Whether it be not as injurious to drainage and navigation, that the silt should rise to the height of 10 feet against the doors of the Grand-sluice, as that the same quantity should be deposited by the tide, in its course up to Langrick-ferry, or to Chappel-hill. In this case, the bed of the river would be raised a few inches, and, in a dry season, to some distance; but such would be the increased weight and accumulated power of the returning tide, that the haven at and below Boston would be always deep and unobstructed.

It is by the confinement of the waters, not by the erection of sluices, that a river is to be improved. By a flood-tide running three hours through Boston, and a lengthened ebb,

the channel would be scoured. Now the tide only *rises*. Then it would *run*. Both the currents would be rapid; and surely to the most ignorant it must be evident, that in proportion as the waters are in motion there will be less sediment deposited.

If then there are not reasons more important than these already considered (and I have heard of none), I feel myself under the necessity of believing that the country is equally unindebted to the Grand-sluice for the improved state of its drainage and its navigation.

It is to the canals, to the confinement of the waters within sufficient banks, and to the scouring of the leading ditches and drains, that we are rather to ascribe the improved and improving state of the outfall.



ON WAINFLEET HAVEN,

and the Inexpediency of

Attempting great Works there.

WHEN I consider the proximity of Wainfleet-haven to the bottom of Boston-deeps and to the North sea, it is not to be wondered, that, for the drainage of the East fen, and for carrying off the upland waters which fall into it, some persons should have supposed, that the outfall by Wainfleet may be rendered preferable to that by the Witham, and that the trade of the country, bordering on the East fen, might be carried on to greater advantage in that channel than by Boston.

FROM a report made by Mr. Grundy, in 1774, it appeared, that low water at Gibraltar-house was only $16\frac{1}{2}$ inches lower than at Maud Foster's gowt, and that, to render this trifling advantage useful to the country, it would be necessary to build a sluice, and to carry on works the expence of which was *estimated* at £.37,552:9:6. It then also appeared, that the channel at Gibraltar was in a worse state

than when surveyed in 1756; but, on the other hand, it was certain, that, within the same period, the channel of the Witham had improved.

To propose such works at Wainfleet, under these circumstances, was surely great folly. What it was that prevented the plan being carried into execution I know not: it was perhaps the wisdom, perhaps the poverty, of the country.

SINCE the survey of 1774, it is certain that the haven has not improved. What should be a channel is now one vast shoal, extending from the mouth of the haven to the inner *Knock*; and, on the south side of the entrance, the strand extends much farther than it formerly did. From the flowing of the tides (the only level to which I have attended), I have reason to believe, that low-water-mark in the deeps, opposite to Wainfleet-haven, is but little lower than the same at High-horn; and as it now is, and probably ever will be, much less difficult to keep-up a good and certain communication between Boston-haven and the latter place, than between Wainfleet-haven and the Deeps,* the drainage of the East fen will be best effected by Boston.

* To shew the acclivity of the sands at the mouth of Wainfleet-haven, I need only state, that, at the buoys, it is nearly

IN point of distance from the East Fen, Wainfleet-outfall holds out no advantages over Boston. But it would be of general advantage to the fen-country, and as much to the East Fen as to any other, that its waters should flow to the Witham, and contribute to the support and improvement of a general outfall. As this river is in an improving state, and may be expected to become better and better by the acquisition of additional streams, it is indisputably wise to preserve one grand outlet, in preference to a number, and an infinitely more desirable object to unite, than to divide, the powers*

BUT, it may be said, Wainfleet had formerly a good haven, and it is therefore capable of improvement, and may be restored to its ancient state. If that haven ever was a good one, I answer, it must have been at a remote period, when the direction of the coast and the set of the tides were not as at present. That these

half-flood, or, in other words, the tide flows there about two hours and a half, before it begins to flow in the haven, opposite to Gibraltar-house.

* Lest this observation should be supposed to militate against the objections, which I make to the Welland-canal, it may be necessary to remind the reader, that it is *above*, and not *below* Wyberton-roads, that the Witham wants improvement,

have been much changed since the time of the Romans, may be concluded from the direction of the old sea-bank, between Wainfleet and Skegness, and from the vast marshes which have been formed and inclosed there. At Skegness, and to the northward of it, the sea has swept away a vast tract of land.

By Leland it is said, "Skegnesse was heretofore a great haven-town, and walled, having a castle; but the old town is clean consumed and eaten up of the sea." Even the concluding syllable of the name, *Skegnesse*, *Naze* or *Nose*, indicates that there was a promontory there; and, therefore, the coast must have stretched from the ancient haven in a more easterly direction than at present. That the tide then ran more directly for the haven is probable. But now, as it sets strongly across it, the entrance is very dangerous, when the wind blows hard between the North and North-east; and, when it blows strongly from the opposite points, such is the force of the sea at high-water, and during a great part of the ebb, that vessels are scarcely able to ride at anchor, and they strike very hard before they take the ground.

For these reasons, and because the tide does not run up the haven much more than half-flood, and then sets strongly out again, this

haven cannot be a safe retreat from storms, nor Wainfleet become a place of commercial consequence.

WITH such obstacles in the way of improvement, it will not, I conclude, be deemed advisable to expend much money upon this haven, especially as it is demonstrated, that the East Fen may be effectually drained by the Witham.—The few advantages at present enjoyed by Wainfleet need not be abridged. Nor need any jealousy be entertained, there or elsewhere, of the increase of wealth, which Boston may experience by an improved neighbourhood; for it is obvious, that the gain of the one will not be a loss to the other, that Boston, already considerable for inland and foreign trade, can best supply the wants of the country, and that, as it affords a ready market for grain, and furnishes commodities in return, the advantages to the town and the country will be reciprocal.



...the ... of the ...

...the ... of the ...



...the ... of the ...

